

HANNIGAN 2014-2024

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Table A: Source Samples Tested for Mutagenicity in the Bacterial Assay

equivalent organic carbon(μg) ^b	-PMS ^a				+PMS ^a			
	mutant fraction ^c ($\times 10^5$)	relative survival ^d	stat signif ^e		mutant fraction ^c ($\times 10^5$)	relative survival ^d	stat signif ^e	
			CC	HC			CC	HC
catalyst-equipped automobile exhaust								
control	7.8 \pm 1.8	1.00			9.5 \pm 1.3	1.00		
1.96	12.4 \pm 2.0	0.72	+	-	12.3 \pm 1.5	0.91	-	-
5.87	27.7 \pm 4.0	0.50	+	+	16.0 \pm 2.0	0.79	+	+
17.6	111.2 \pm 18.3	0.19	+	+	32.4 \pm 4.0	0.49	+	+
overall			+				+	
noncatalyst automobile exhaust								
control	9.7 \pm 1.5	1.00			7.4 \pm 1.2	1.00		
5.26	27.2 \pm 3.2	0.78	+	+	16.8 \pm 2.0	0.95	+	+
15.8	62.3 \pm 9.2	0.31	+	+	33.6 \pm 3.9	0.63	+	+
47.3					53.8 \pm 7.3	0.36	+	+
overall			+				+	
heavy-duty diesel truck exhaust								
control	8.2 \pm 1.1	1.00			7.4 \pm 1.1	1.00		
3.22	23.7 \pm 2.9	0.54	+	+	9.2 \pm 1.5	0.66	-	-
9.67	85.3 \pm 11.1	0.25	+	+	20.4 \pm 2.8	0.53	+	+
29.0	320.5 \pm 65.3	0.07	NC		43.4 \pm 5.9	0.33	+	+
overall			+				+	
fuel oil-fired boiler								
control	6.4 \pm 1.1	1.00			9.5 \pm 1.3	1.00		
1.20	27.5 \pm 3.1	0.82	+	+				
2.50					14.6 \pm 1.7	0.90	+	+
3.50	22.4 \pm 2.8	0.76	+	+				
5.00					14.2 \pm 1.8	0.77	+	+
7.50					15.4 \pm 2.0	0.71	+	+
10.0					21.4 \pm 2.7	0.62	+	+
10.5	63.7 \pm 8.5	0.37	+	+				
overall			+				+	
natural gas home appliances								
control	13.3 \pm 1.9	1.00			9.3 \pm 1.3	1.00		
1.58	79.1 \pm 11.1	0.34	+	+	34.9 \pm 3.6	0.70	+	+
4.73	155.1 \pm 31.4	0.13	+	+	105.3 \pm 10.4	0.45	+	+
14.2	429.5 \pm 157.0	0.03	NC		250.3 \pm 33.0	0.20	+	+
overall			+				+	
fireplace, pine								
control	9.7 \pm 1.8	1.00			12.3 \pm 1.6	1.00		
3.75	30.4 \pm 3.6	0.54	+	+	21.6 \pm 2.7	0.77	+	+
11.25	62.2 \pm 9.8	0.20	+	+	22.7 \pm 3.0	0.65	+	+
33.75	37.5 \pm 30.9	0.01	NC		45.5 \pm 7.3	0.28	+	+
overall			+				+	

Table A: continued

equivalent organic carbon(μg) ^b	-PMS ^a				+PMS ^a			
	mutant fraction ^c ($\times 10^5$)	relative survival ^d	stat signif ^e		mutant fraction ^c ($\times 10^5$)	relative survival ^d	stat signif ^e	
			CC	HC			CC	HC
fireplace, pine - nonpolar fraction ^{f,g}								
control	12.4 \pm 1.6	1.00			9.4 \pm 1.2	1.00		
3.75	8.0 \pm 1.2	1.20	-	-	10.4 \pm 1.3	0.84	-	-
11.25	12.5 \pm 1.5	1.16	-	-	9.4 \pm 1.3	0.83	-	-
33.75	12.9 \pm 2.0	0.67	-	-	10.3 \pm 1.5	0.63	-	-
overall				-				-
fireplace, oak ^g								
control	10.5 \pm 1.4	1.00			9.4 \pm 1.2	1.00		
2.35	28.5 \pm 3.9	0.45	+	+	9.4 \pm 1.3	0.79	-	-
7.04	126.7 \pm 26.9	0.09	NC		12.1 \pm 1.8	0.59	-	-
21.13					15.9 \pm 4.3	0.14	+	+
overall				+				+
fireplace, oak - nonpolar fraction								
control	10.5 \pm 1.4	1.00			9.0 \pm 1.9	1.00		
2.35	16.1 \pm 2.0	0.82	+	+	8.7 \pm 1.5	1.63	-	-
7.04	27.3 \pm 3.1	0.70	+	+	11.5 \pm 1.5	1.55	-	-
21.13	108.7 \pm 15.6	0.22	+	+	13.5 \pm 2.4	1.09	+	-
overall				+				-
fireplace, synthetic log								
control	9.7 \pm 1.8	1.00			12.3 \pm 1.6	1.00		
1.49	24.7 \pm 3.2	0.51	+	+	17.0 \pm 2.3	0.75	+	+
4.46	27.7 \pm 5.4	0.42	+	+	19.5 \pm 2.7	0.65	+	+
13.38	50.6 \pm 6.7	0.32	+	+	21.1 \pm 2.7	0.73	+	+
overall				+				+
fireplace, synthetic log - nonpolar fraction								
control	10.5 \pm 1.4	1.00			8.0 \pm 1.5	1.00		
1.49	12.2 \pm 1.4	1.15	-	-	9.4 \pm 1.6	1.18	-	-
4.46	15.5 \pm 1.8	0.97	+	+	10.8 \pm 1.6	1.34	-	-
13.38	25.3 \pm 3.0	0.64	+	+	10.7 \pm 1.6	1.26	-	-
overall				+				-
cigarette smoke								
control	13.0 \pm 1.8	1.00			11.0 \pm 1.6	1.00		
2.73	18.2 \pm 2.3	0.91	+	+	13.4 \pm 1.9	0.92	-	-
8.20	23.4 \pm 3.7	0.50	+	+	14.9 \pm 1.8	1.17	+	+
24.6	31.0 \pm 5.1	0.37	+	+	20.1 \pm 2.8	0.79	+	+
overall				+				+
roofing tar pot								
control	8.2 \pm 1.1	1.00			7.4 \pm 1.1	1.00		
1.98	11.6 \pm 1.6	0.74	+	-	8.6 \pm 1.4	0.70	-	-
5.93	9.2 \pm 2.0	0.53	-	-	8.4 \pm 1.4	0.76	-	-
17.8	15.0 \pm 1.8	0.63	+	+	7.9 \pm 1.5	0.58	-	-
overall				+				-

Table A: continued

equivalent organic carbon(μg) ^b	mutant fraction ^c ($\times 10^5$)	-PMS ^a			+PMS ^a			
		relative survival ^d	stat signif ^e		mutant fraction ^c ($\times 10^5$)	relative survival ^d	stat signif ^e	
			CC	HC			CC	HC
charbroiled burger smoke ^f								
control	12.4 \pm 1.6	1.00			11.0 \pm 1.6	1.00		
3.18	11.2 \pm 1.5	1.02	-	-	10.3 \pm 1.4	1.29	-	-
9.53	8.9 \pm 1.3	1.09	-	-	13.2 \pm 1.8	1.04	-	-
28.6	8.1 \pm 1.3	0.98	-	-	14.4 \pm 2.2	0.75	-	+
overall				-				-
paved road dust ^g								
control	5.5 \pm 1.1	1.00			9.4 \pm 1.2	1.00		
0.50	6.4 \pm 1.2	0.95	-	-				
1.00	5.7 \pm 1.1	0.97	-	-				
2.00	7.3 \pm 1.2	1.04	-	-	9.4 \pm 1.2	0.88	-	-
6.00	7.7 \pm 1.3	0.95	-	-	9.0 \pm 1.2	0.83	-	-
18.0	8.6 \pm 1.5	0.87	+	-	13.8 \pm 1.5	0.92	+	-
overall				-				-
brake lining wear								
control	8.2 \pm 1.1	1.00			7.4 \pm 1.1	1.00		
1.44	10.4 \pm 1.4	0.83	-	-	6.8 \pm 1.1	0.86	-	-
4.33	11.8 \pm 1.8	0.57	+	-	7.7 \pm 1.2	0.92	-	-
13.0	10.8 \pm 2.3	0.65	-	-	6.9 \pm 1.2	0.77	-	-
overall				-				-
tire wear debris								
control	5.8 \pm 1.0	1.00			7.1 \pm 1.1	1.00		
4.20	6.0 \pm 1.1	0.96	-	-	6.7 \pm 1.0	0.96	-	-
12.6	10.4 \pm 3.4	0.39	+	-	8.4 \pm 1.1	1.03	-	-
37.8	13.0 \pm 3.7	0.21	+	-	8.6 \pm 1.5	0.68	-	-
overall				-				-
urban vegetative detritus								
control	13.3 \pm 1.9	1.00			9.3 \pm 1.3	1.00		
1.64	17.9 \pm 2.4 ^h	0.87	-	+	9.0 \pm 1.4	0.81	-	-
4.93	13.3 \pm 2.0	0.86	-	-	9.8 \pm 1.5	0.76	-	-
14.8	14.9 \pm 1.9	1.12	-	+	10.7 \pm 1.7	0.69	-	-
overall				-				-

^a Tested in the absence of postmitochondrial supernatant (-PMS) or tested in the presence of postmitochondrial supernatant (+PMS). ^b Equivalent organic carbon (μg) per 100 μL bacterial suspension. ^c Mutant cells per 10^5 original cells \pm the 99% confidence limit based on Poisson statistics. ^d Survival is relative to the concurrent negative control. ^e For an extract to be mutagenic, a mutant fraction must be greater than the concurrent negative control (CC) such that the 99% confidence limits on the sample mean value and on the concurrent negative control do not overlap, and that mutant fraction must exceed the 95% upper confidence limit of the historical negative controls (HC). For relative survival less than 0.10, mutagenicity is not interpreted and the result is designated no call (NC). ^f Sample was extremely toxic -PMS and was tested using a long-growth variation of the bioassay. ^g Sample was extremely toxic +PMS and was tested using a long-growth variation of the bioassay. ^h Expected numerical variation has 99% confidence limits at least as great as ± 2.7 .

Table B: Ambient Samples Tested for Mutagenicity in the Bacterial Assay

equivalent organic carbon(μg) ^b	-PMS ^a					+PMS ^a		
	mutant fraction ^c ($\times 10^5$)	relative survival ^d	stat signif ^e		mutant fraction ^c ($\times 10^5$)	relative survival ^d	stat signif ^e	
			CC	HC			CC	HC
Azusa; Jan, Feb, Mar								
control	5.6 \pm 1.0	1.00			6.4 \pm 1.1	1.00		
0.57	11.2 \pm 1.7	0.72	+	-	6.7 \pm 1.1	1.06	-	-
1.71	16.1 \pm 2.2	0.69	+	+	7.2 \pm 1.2	1.02	-	-
5.12	109.4 \pm 24.5	0.08	NC		15.6 \pm 2.2	0.71	+	+
overall			+				+	
Azusa; Apr, May, Jun								
control	7.8 \pm 1.8	1.00			6.4 \pm 1.1	1.00		
0.64	8.2 \pm 1.3	1.07	-	-	7.6 \pm 1.1	1.14	-	-
1.93	10.3 \pm 1.5	0.93	-	-	6.6 \pm 1.1	1.10	-	-
5.80	60.6 \pm 11.5	0.19	+	+	15.4 \pm 2.5	0.81	+	+
overall			+				+	
Azusa; Jul, Aug, Sep								
control	5.9 \pm 1.0	1.00			5.7 \pm 1.1	1.00		
0.81	11.5 \pm 1.6	0.82	+	-	5.6 \pm 1.1	0.97	-	-
2.43	13.8 \pm 2.2	0.55	+	-	6.1 \pm 1.2	0.89	-	-
7.28	33.9 \pm 4.8	0.40	+	+	7.7 \pm 1.6	0.72	-	-
overall			+				-	
Azusa; Oct, Nov, Dec								
control	5.9 \pm 1.0	1.00			5.7 \pm 1.1	1.00		
0.73	7.5 \pm 1.1	1.05	-	-	6.8 \pm 1.4	0.79	-	-
2.19	14.6 \pm 2.7	0.40	+	+	7.1 \pm 1.4	0.79	-	-
6.57	28.0 \pm 4.0	0.44	+	+	6.4 \pm 1.5	0.64	-	-
overall			+				-	

Table B: continued

equivalent organic carbon(μg) ^b	-PMS ^a				+PMS ^a			
	mutant fraction ^c ($\times 10^5$)	relative survival ^d	stat signif ^e		mutant fraction ^c ($\times 10^5$)	relative survival ^d	stat signif ^e	
			CC	HC			CC	HC
Long Beach; Jan, Feb, Mar								
control	11.2 \pm 1.8	1.00			9.1 \pm 1.4	1.00		
0.69	14.3 \pm 1.9	1.21	-	+	8.9 \pm 1.3	1.10	-	-
2.07	26.6 \pm 3.9	0.64	+	+	12.0 \pm 1.7	0.96	-	-
6.22	103.6 \pm 16.4	0.28	+	+	18.9 \pm 2.5	0.77	+	+
overall			+				+	
Long Beach; Apr, May, Jun								
control	11.2 \pm 1.8	1.00			9.1 \pm 1.4	1.00		
0.43	14.9 \pm 2.2	0.91	-	+	9.9 \pm 1.6	0.90	-	-
1.30	18.5 \pm 2.4	1.01	+	+	8.2 \pm 1.3	1.00	-	-
3.90	77.8 \pm 11.7	0.34	+	+	10.4 \pm 1.7	0.84	-	-
overall			+				-	
Long Beach; Jul, Aug, Sep ^{f,g}								
control	8.6 \pm 1.4	1.00			10.5 \pm 1.3	1.00		
0.24	8.4 \pm 1.4	0.96	-	-	12.1 \pm 1.4	0.97	-	-
0.48	10.1 \pm 1.8	0.74	-	-	8.9 \pm 1.2	1.00	-	-
0.96	32.1 \pm 25.7	0.01	NC		17.5 \pm 3.4	0.28	+	+
overall			NC				+	
Long Beach; Oct, Nov, Dec								
control	5.6 \pm 1.0	1.00			7.7 \pm 1.0	1.00		
1.28	7.9 \pm 1.2	0.94	-	-	8.6 \pm 1.0	1.05	-	-
3.83	15.9 \pm 2.3	0.58	+	+	9.5 \pm 1.1	1.07	-	-
11.5	70.6 \pm 11.0	0.21	+	+	15.9 \pm 1.8	0.73	+	+
overall			+				+	

^a Tested in the absence of postmitochondrial supernatant (-PMS) or tested in the presence of postmitochondrial supernatant (+PMS). ^b Equivalent organic carbon(μg) per 100 μL bacterial suspension. ^c Mutant cells per 10^5 original cells \pm the 99% confidence limit based on Poisson statistics. ^d Survival is relative to the concurrent negative control. ^e For an extract to be mutagenic, a mutant fraction must be greater than the concurrent negative control (CC) such that the 99% confidence limits on the sample mean value and on the concurrent negative control do not overlap, and that mutant fraction must exceed the 95% upper confidence limit of the historical negative controls (HC). For relative survival less than 0.10, mutagenicity is not interpreted and the result is designated no call (NC). ^f Sample was extremely toxic -PMS and was tested using a long-growth variation of the bioassay. ^g Sample was extremely toxic +PMS and was tested using a long-growth variation of the bioassay.